National Institute of Environmental Health Sciences

Seasonal associations between weather conditions and suicide--Evidence against a classic hypothesis

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Year: 2007

Journal: American Journal of Epidemiology. 165 (5): 561-569

Abstract:

Psychiatrists, epidemiologists, and sociologists have debated the existence of an association between weather conditions and suicide seasonality since the preliminary statistical investigations in the 19th century. Provided that the effect of weather conditions on suicide operates via a dose-response-like mechanism, time-series (Box-Jenkins) analysis permits an indirect test of the hypothesis that temperature or other weather variables promote higher suicide frequencies in late spring and early summer months. The authors modeled monthly data on suicide and climatic conditions (i.e., temperature, sunshine, and precipitation data) in Switzerland. Cross-correlations between the filtered (prewhitened) residual series were calculated for the period 1881-2000, for consecutive 30-year periods, for different suicide methods, and--with regard to the seasonality hypothesis--for series relying on moving 1- and 3-month frames. Positive cross-correlations emerged between suicide and temperature data for the whole time series, as well as in all consecutive 30-year periods. However, cross-correlations of data series based on moving frames showed a minor peak in associations for summer frames and a major peak in associations for winter frames, the latter reflecting suicides performed mainly outdoors (being run over by a train and jumping from high places). The results represent a novel minor effect in seasonality of suicide, which is hardly compatible with the hypothesized role of temperature in suicide seasonality.

Source: http://dx.doi.org/10.1093/aje/kwk034

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Precipitation, Solar Radiation, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Switzerland

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Mental Health/Stress

Mental Health Effect/Stress: Mood Disorder

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified